

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference JST-122-PCT	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/JP2004/011351	International filing date (day/month/year) 06.08.2004	Priority date (day/month/year) 11.08.2003
International Patent Classification (IPC) or national classification and IPC G01N13/16, G12B21/08		
Applicant JAPAN SCIENCE AND TECHNOLOGY AGENCY		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>	
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>	
Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/011351

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following _____, which is the language of a translation furnished for the purposes of:
 - ☐ international search (Rule 12.3 and 23.1(b))
 - ☐ publication of the international application (Rule 12.4)
 - ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
 - ☐ the international application as originally filed/furnished
 - ☒ the description:
 - pages 1-24 _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☒ the claims:
 - nos. 9-11 _____ as originally filed/furnished
 - nos.* _____ as amended (together with any statement) under Article 19
 - nos.* 2-5, 7, 8 _____ received by this Authority on 08.06.2005
 - nos.* _____ received by this Authority on _____
 - ☒ the drawings:
 - sheets 1-22 _____ as originally filed/furnished
 - sheets* _____ received by this Authority on _____
 - sheets* _____ received by this Authority on _____
 - ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
 - ☐ the description, pages _____
 - ☒ the claims, nos. 1, 6 _____
 - ☐ the drawings, sheets/figs _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages _____
 - ☐ the claims, nos. _____
 - ☐ the drawings, sheets/figs _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/011351

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2-5, 7-11	YES
	Claims		NO
Inventive step (IS)	Claims	2-5, 8-11	YES
	Claims	7	NO
Industrial applicability (IA)	Claims	2-5, 7-11	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Document 1: JP 6-267408 A (Canon Inc.), 22 September 1994, entire text; all drawings

Document 2: JP 10-239325 A (Seiko Instruments, Inc.), 11 September 1998, entire text; all drawings

Document 3: JP 2002-5810 A (Canon Inc.), 9 January 2002, entire text; all drawings

Document 4: JP 2003-114182 A (Japan Science and Technology Corporation), 18 April 2003, entire text; all drawings

Claims 2 to 5 and 8 to 11

Document 1 sets forth the probe of a probe microscope using a transparent substrate, constituted so as to enable optical observation and/or measurement from the rear surface of the transparent substrate, and provided with a probe having a cantilever which is supported so as to be held a predetermined distance from the surface, on the surface of one side of the transparent substrate.

Document 2 sets forth a similar probe, and a transparent substrate which is constituted to allow optical measurement and/or observation, while partitioning the environment inside and outside the

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PCT/JP2004/011351

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container.

In addition, in the probe set forth in document 1, the cantilever forms a multilayer structure comprising a cantilever main body (5) and a second reflective layer (4) (and an electrode (10)), therefore internal stress is applied. Moreover, [fig. 4] and [fig. 5] indicate that the interval between the cantilever and the transparent substrate becomes gradually wider from the root part to the tip of the cantilever.

Moreover, document 4 indicates that the cantilever is excited by rays of light.

However, a probe for a probe microscope which uses a transparent substrate, wherein a microlens is formed on part of the aforementioned transparent substrate, and rays of light for optical driving or observation/measurement of the cantilever are converged on the rear surface of the cantilever by the aforementioned microlens, is not disclosed in any of the documents cited in the international search report, and would not be obvious to a person skilled in the art.

Claim 7

Document 3 (see paragraph [0025] and [fig. 5] in particular) sets forth a method of producing a probe, wherein a lever shape is fabricated on a single crystal silicon thin-film layer of an SOI substrate, the reverse side of the SOI substrate is connected to another substrate, and the handling wafer and embedded oxide film are removed.

In addition, the inventions set forth in documents 1 and 3 relate to the same technical field of probe microscopes, and in said technical field it is a known

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PCT/JP2004/011351

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technique to form a probe by wet etching, therefore it would be obvious to a person skilled in the art to employ the production method set forth in document 3 as the production method for the probe set forth in document 1, and to form the probe by wet-etching, to constitute the invention set forth in claim 7.